

What Is Claimed Is:

1. A porcine uroplakin II gene promoter having a base sequence of SEQ ID

NO: 1:

5 [SEQ ID NO: 1]

gggctaggagtggaatcagagctggcctatgccacagcaacgcagaatccaaaccacatctccgacctaca
ccagaccgtaccataacacaggatcctaaccactgagcaaggtcagggatcaaacccaaatcctcatggatactagt
cgggttcttaacccgctgagccacagtggcactcctgtttgtgtctcgttttggctgcatactgcacagatacagaa
gttcctggtaaggattgaacccatgccacagcagcaacccgagccacagcagtgacaacagcctgatcctaactgct
10 10 agaccaccagggAACGCCCCCTCAACTTTCTGCTGGAAACCCCTGAGTCAGTACAACCTGACAATNGNTTTTTTTTT
TTTTGCTTTCTAGGGCCACTTCCCGGGCATGTTGGAGATTGCGAGGCTANAGGTCTAATCGGAGCTGTAGGCCACCGGC
CTACACCAAGGCCATAGCAACGAGGGATCCGGAGCCGAGTCAGTCAACCTACACTACAGTCATGGCAACACCGGATCGT
15 15 AACCCACTGAGCAAGGCCAGGGATCGAACCCGCAACCTCATGGTCTAGTCAGATTGTTAACCTGCACCATGACA
GGAACCTCCAACCTGACAATTATCATTTCTGCTGCCCTAGTTGTTGAGTAATTGAAAAATTCCAAGATGTCAAGGTCAAGTGT
GATGGTTAATTATGTGTCAACCTGACTAGGCCATGTTGCCGGATGTTGGAGTCATTGTTATTCTGGATGTTACTGTGAAGATAT
20 20 GTTTGGATGAAATTAAACATTAAATCAGTGGGGGGAAAAAGAAGTTCTCGTTGGTGCATCAGAAACAAATCCGACTA
GGAAACAAGCGGTTGAGGTTGCGATCCCTGGCCTACTTAGTGGAGTCAGGATCTGGCGTTGCCGTGAGCTGTGGTACAG
GTGGCAGATGCAGCTGGATCTAGCATGCTGTTGGCTGTTGGTAGGCCAGCAGCTGAGCTCTGATTAAACCCCAAGTCT
GGGAACCTCCATATGCCGTGGGTGGCCGGAAAAAGCAAAAAATAAATAAATAAATTAAACCAGGGATTGAG
25 25 CAAAGCAGATTACCCATAATATGGTGGTCTCATCAAGTTCTGAGGCCCTAGTGGAAACAAGACCGACCTCCACCT
CTCCCCATGAGAAGGAAAGAATTCTGCCAAAGACCGCCNTGGACNTAAACTGCAACTCTTCTGAGTTCCAGCATGTT
GGCCTCCCCATCAGACTTGGACTTGCAAGCCTCGCAATTGCACTGAGCCAATTCTTAAATAAATCCGTCTATATAC
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TGGGTGTCACCTCAAACACTCAGCCTCTCAAGGCTTTCTAGCTGTCCTCTCTCCACACAGCTGTTCAAACCT
25 25 TCACCCCTCTCAGGGCGCAATCCCTCTCCCTGAGTTCTACTTCCAGAGAAAGCAGAGACCTCAGGAGTGTGCT

gcttaacttacttccatccctcagccgtgaaaagtaaagcttctgcaccactgcccattctctgcagacag
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5 gcccacccctgggtctctgtggaaatctgcccagcatcaattggctccacttccaggaggatggaaagccctgtggc
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ctcacttgccctcaggaaaccacacagctgccagccagccagcaccagccagct

15 2. The uroplakin II promoter of Claim 1, which is one selected from functional equivalents which have one or more disruption, deletion, insertion, point, substitution, nonsense, misense, polymorphism or rearrangement mutation occurred in the base sequence of SEQ ID NO: 1.

20 3. An expression vector comprising the base sequence of the promoter of Claim 1 or 2 and a base sequence coding for a target protein at the 3' end of the promoter.

25 4. The expression vector of Claim 3, wherein the target protein is human erythropoietin (EPO).

5. The expression vector of Claim 4, which is the expression vector pUP2/hEPO deposited under the accession number KCTC 10352BP.

6. The expression vector of Claim 4, which is an I/pUP2/hEPO vector
5 containing a neomycin-resistant gene of SEQ ID NO: 5 as a selective marker, and an
insulator of SEQ ID NO: 6 at the 5' end of the UPII promoter:

[SEQ ID NO: 5]

gccccgcgcgcgtcaggggactttcgaaaaatgtgcgcggaaaccttattttatctaaataca
10 agaaccagctgtggatgtgtcagttgggtgtggaaagtccccaggctccccaggcaggcagaagtatgcaaagcat
gcatctcaatttagtcagcaaccagggtgtggaaagtccccaggctccccaggcaggcagaagtatgcaaagcatgc
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15 cgcagggtctccggccgttgggtggagaggctattcgctatgactggcacaacagacaatcgctgctgtatgc
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20 gaaatcgcat
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aggac
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cttgcgttgc
ctcccgattcgcagcgcacgcgttgcgttgcggactctggggatccgcggat
25 caagcgacgcccacccatcgcgttgcgttgcggactctggggatccgcggat

gggacgcggctggatgatccctccagcgcgggatctcatgcggagttctcgcccaccctaggggaggctaactga
aacacggaaggagacaataccggaaggaacccgcgtatgacggcaataaaaagacagaataaaacgcacggtgtg
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5 ggcaggccctgccatagcctcaggttactcatataacttttagattgataaaacttcattttaaataaaaggatcttaggtga
agatccctttgataatctcatgaccaaaaatcccttaacgtgagtttcgttccactgagcgtccgatcg

[SEQ ID NO: 6]

ctgcagacacacggggatacggggaaaaagctttaggctgaaagagagattagaatgacagaatcatagaacggc
ctgggttgc当地
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gctcaccacccttggggaaaaactgcctcctcatatccaacccaaacctccccgtctcagtgtaaagccattcccc
5 tgtcctatcaagggggagtttgc当地
agatcttgggataaggaagtgcaggacagcatggacgtggacatgcaggtgtgaggc当地
gtcacagcgttc当地
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10 gctgtccactgc当地
gccattatctctcatccaaactccaggaacggagtc当地
gag

7. The expression vector of Claim 4, which is a pUP2/hEPO (WPRE) vector containing a neomycin-resistant gene of SEQ ID NO: 5 as a selective marker, and a
15 woodchuck hepatitis virus posttranscriptional regulatory element (WPRE) of SEQ ID NO: 7 at the 3' end of the EPO gene:

[SEQ ID NO: 7]

accaggtctgtcctgttaatcaacctctggattacaaaattgtgaaagattgactggattcttaactatgttgc
20 cctttacgtatgtggatacgtcttaatgccttgtatcatgttattgcctccgtatggcttcatttctcccttgtataa
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ctcaatccagcggacccctccctccgcggcgtctgcggctctgcggcttcgcgtttccgcgtccctcgccctcagacg
25 agtcggatctcccttggccgcctcccgctgttcgcctcggctcgt

8. The expression vector of Claim 4, which is an I/pUP2/hEPO (WPRE) vector that contains a neomycin-resistant gene of SEQ ID NO: 5 as a selective marker, an insulator of SEQ ID NO: 6 at the 5' end of the UP2 promoter, and an 5 WPRE of SEQ ID NO: 7 at the 3'-end of the EPO gene.

9. An animal's fertilized ovum introduced with the expression vector of any one of Claims 4 to 8.

10 10. A transgenic animal obtained by the implantation of the fertilized ovum of Claim 9.

15 11. The transgenic animal of Claim 10, which is one selected from the group consisting of porcine, mouse, bovine, poultry, ovine and caprine animals.

12. A method for producing useful proteins, which comprises the steps of: implanting the animal's fertilized ovum introduced with the expression vector of any one of Claims 4 to 8 into a surrogate mother animal; and obtaining transgenic animals from the surrogate mother animal; and

20 isolating and purifying useful proteins from the urine of the transgenic animals.